AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph beginning at page 17, line 8 with the following rewritten paragraph.

Formation of the multiplicity of particles as a thin film is a sensitive operation. In our experience, casting from solution with slow evaporation does not produce a thin film with reproducibility or acceptable uniformity. We have invented various methods that address this problem. For example, a first technique is spraying a solution as a fine mist from an air brush onto a substrate ~~substantial~~ surface which has been heated, preferably to a temperature above the boiling point of the solvent. The solvent is flashed away leaving a film of very fine uniformly dispersed features. Without heating the features of the film are very coarse and nonuniform. Another technique is based on chemical self-assembly. The sensor surface and substrate are cleaned by a plasma or chemical treatment and coupling agents are applied. Coupling agents are difunctional molecules with an inert spacing structure separating the functional groups (e.g. an a-ω silyl alkanethiol, such as $(CH_3\ O)_3Si(CH_2)_3SH$, or a dithiol, $HS(CH_2)_6SH$)). One functional group bonds to the sensor/substrate (e.g., the $-Si(OCH_3)_3$ or the -SH functional group) surface, and the other (e.g., a second -SH functional group) is oriented away from the surface for subsequent bonding with the multiplicity of particles. The ligand shell of the metal particle is a dynamic system where an individual molecule may be displaced by a similarly functionalized molecule. Thus, the immobilized thiol group of the absorbed coupling agent may bond to a particle and immobilize it on the aforementioned surface. In this fashion a monolayer of particles is chemisorbed on the surface. Subsequently, the immobilized particle monolayer is exposed to a solution of a dithiol coupling agent. The dithiol exchanges with some of the monofunctional thiol ligand molecules in the immobilized particle ligand shell and positions the second thiol group on the outer surface of the immobilized particle's ligand shell. A second exposure to a solution for forming the stabilized multiplicity of particles results in chemisorption of a second particle layer on the first. In this manner many layers of particles are built up into a multilayer film. This offers a very highly controlled, uniform and reproducible deposition where variations in the character of metal core and ligand shell molecule may be made at any desired depth in the cluster multilayer. As an additional benefit, this film is not removable by solvents or by mild abrasion unlike that of the first technique.